

Claims

1. A method for maintaining a database for display of digital television broadcast signals carried by a digital broadcast stream including system control data, the system control data including first information relating to a first broadcast standard and optionally also including second information relating to a second broadcast standard, the method comprising:
 - receiving the digital broadcast stream;
 - extracting the first information from the system control data;
 - storing a first set of data entries from the extracted first information;
 - extracting the second information from the system control data if the second information is present in the system control data;
 - and
 - storing a second set of data entries only if the extracted second information is consistent with the first set of data entries.
2. A method as recited in claim 1 wherein the first information comprises MPEG-2 table information and the second information comprises ATSC table information.
3. A method as recited in claim 2 wherein storing a first set of entries comprises:
 - storing a first portion of the first set of data entries;
 - receiving additional system control data;
 - extracting additional first information from the additional system control data; and
 - storing a second portion of the first set of data entries from the extracted additional first information.

4. A method as recited in claim 3 wherein storing a second portion of the first set of data entries comprises storing data from transmitted MPEG-2 Program Mapping Tables.
5. A method as recited in claim 3 wherein storing a second set of data entries comprises storing one of the second data entries only if a second portion of a corresponding one of the first set of data entries has previously been stored.
6. A method as recited in claim 5 wherein storing a second set of data entries comprises storing information contained in transmitted Program and Specific Information Protocol tables.
7. A method as recited in claim 2 wherein the first information includes a version number and the method comprises:
 - comparing the version number of extracted first information to the version number of a previously stored first set of data entries;
 - ignoring the extracted first information if the compared version numbers are equal;
 - constructing a new set of first data entries if the compared version numbers are not equal; and
 - deleting the existing set of previously stored first data entries if the compared version numbers are not equal.
8. A method as recited in claim 2 wherein the first information includes a transport stream ID and the method comprises:
 - comparing the transport stream IDs of the extracted first information and stored first set of data entries; and

resetting the stored first set of data entries and storing a new set of first data entries if the compared transport stream IDs are not equal.

9. A method as recited in claim 2 wherein the first information comprises a plurality of separate sections and at least one program listing, and storing a first set of data entries comprises storing at least one program entry; and wherein the method comprises:
 - comparing the at least one program listing of the extracted first information to a previously stored program entry;
 - if the at least one program listing of the extracted first information does not correspond with a stored program entry, storing the at least one program listing of the extracted first information as an additional program entry and creating a new listing in a channel list; and
 - deleting all program entries which do not have a corresponding entry in the channel list only if the extracted first information comprises the last section of the first information.
10. A method as recited in claim 2 wherein storing a first set of data entries comprises storing a plurality of program data entries each containing data for a separate MPEG-2 program from an MPEG-2 Program Association Table.
11. A method as recited in claim 2, wherein storing a first set of data entries comprises storing a data entry with a corresponding database link structure.
12. A method as recited in claim 11, wherein:

storing a first set of data entries comprises storing at least one data entry over a plurality of noncontiguous portions of memory;

and

the database link structure includes pointers linking the noncontiguous portions of memory.

13. A method as recited in claim 11, wherein the database link structure includes a reference field manipulated by external tasks to indicate pending uses of a corresponding data entry by external task.
14. A method as recited in claim 13 comprising:
generating a delete request to delete a data entry upon detection of a selected condition; and
executing the delete request only if a corresponding reference field indicates no pending uses of the corresponding data entry.
15. A system for maintaining a database for display of digital television broadcast signals carried by a digital broadcast stream including system control data, the system control data including first information relating to a first broadcast standard and optionally also including second information relating to a second broadcast standard, the system comprising:
a memory;
a tuner which receives the digital broadcast stream;
a demultiplexer which extracts the first information from the system control data; and
a control module which stores a first set of data entries from the extracted first information in a database in the memory, commands the demultiplexer to extract second information from the system control data if second information is present in the system control data; and stores in the database a

second set of data entries from the extracted second information only if the extracted second information is consistent with the first set of data entries.

16. A system as recited in claim 15 wherein the first information comprises MPEG-2 table information and the second information comprises ATSC table information.
17. A system as recited in claim 16 wherein the first set of entries comprises:
 - a first portion of the first set of data entries extracted from the first information; and
 - a second portion of the first set of data entries extracted from additional first information received at a time following extraction of the first portion of the first set of data entries.
18. A system as recited in claim 16 wherein the second portion of the first set of data entries comprises information extracted from transmitted MPEG-2 Program Mapping Tables.
19. A system as recited in claim 18 wherein the second set of data entries comprises information extracted from transmitted Program and Specific Information Protocol tables.
20. A system as recited in claim 15 wherein the first information includes a version number.
21. A system as recited in claim 16 wherein the first information includes a transport stream ID.

22. A system as recited in claim 16 wherein the first information comprises a plurality of separate sections and at least one program listing, and the first set of data entries comprises at least one program entry.
23. A system as recited in claim 16 wherein the first set of data entries comprises a plurality of program data entries each containing data for a separate MPEG-2 program from an MPEG-2 Program Association Table.
24. A system as recited in claim 16, wherein the first set of data entries comprises a data entry with a corresponding database link structure.
25. A system as recited in claim 24, wherein:
 - the first set of data entries comprises information stored over a plurality of noncontiguous portions of memory; and
 - the database link structure includes pointers linking the noncontiguous portions of memory.
26. A system as recited in claim 24, wherein the database link structure includes a reference field manipulated by external tasks to indicate pending uses of a corresponding data entry by external task.
27. A system as recited in claim 15, wherein the functions of the tuner, demultiplexer, and control module are performed by a multimedia processor.
28. A computer program product comprising a computer-readable medium having computer-readable code embodied therein for maintaining a database for display of digital television broadcast signals carried by a digital broadcast stream including system control data, the system control data including first information relating to a first broadcast standard and

optionally also including second information relating to a second broadcast standard, the computer-readable medium comprising:

- a component configured to receive the digital broadcast stream;
- a component configured to extract the first information from the system control data;
- a component configured to store a first set of data entries from the extracted first information;
- a component configured to extract second information from the system control data if second information is present in the system control data; and
- a component configured to store a second set of data entries only if the extracted second information is consistent with the first set of data entries.